



Armed Forces College of Medicine

AFCM



Diseases Of The Nose, Sinuses and Pharynx

By
Prof. Omnia Kamel Rizk



good
morning

INTENDED LEARNING OBJECTIVES (ILO)

By the end of this lecture the student will be able to:

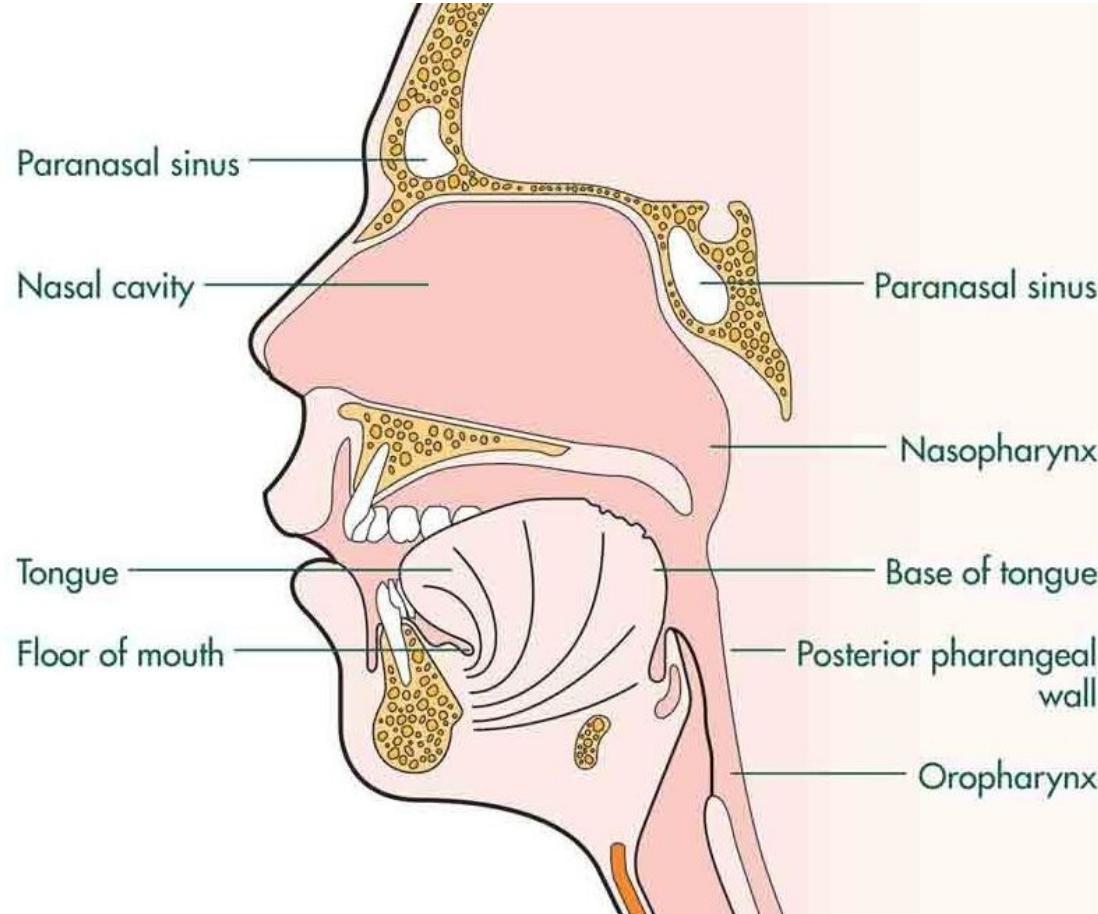
1. Define Rhinitis
2. Explain the pathology of different types of acute rhinitis.
3. Describe the pathology of allergic nasal polyp
4. Explain chronic atrophic rhinitis
5. Describe the pathology of rhinoscleroma
6. List causes of epistaxis
7. Discuss pathology and complications of sinusitis
8. Describe the pathology of acute pharyngeotonsillitis
9. Demonstrate the pathology of quinzy, diphtheria, and adenoid

Lecture Plan



1. Part 1 (5 min) Introduction
2. Part 2 (35 min) Main lecture
3. Part 3 (5 min) Summary
4. Lecture Quiz (5 min)

Anatomy of the nose, sinuses and pharynx



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Acute Rhinitis

1-Acute catarrhal rhinitis (*coryza or common cold*):

It is a viral infection, self limited and the commonest infections

Cause: rhinovirus, influenza virus, and adenoviruses.

Pathology: catarrhal inflammation.

Clinically: fever, muscle ache and sore throat.

Allergic rhinitis (type I hypersensitivity) -2

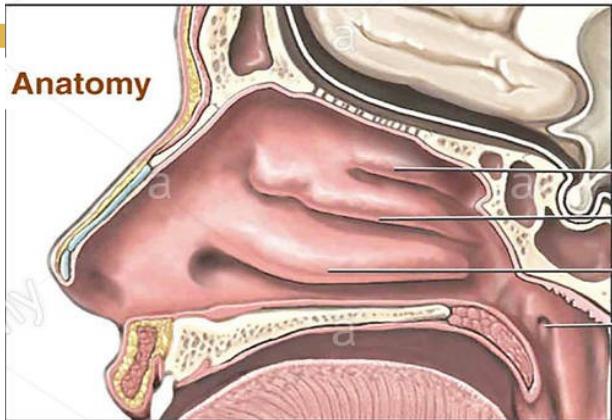


One of the most common causes of acute rhinitis (hay fever).

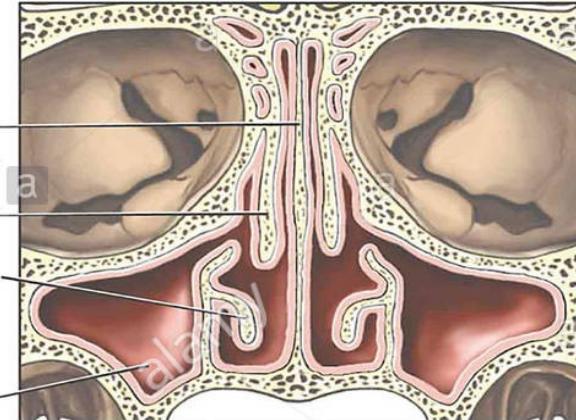
Caused by variety of allergens as pollens, always have family history and tendency to develop other atopic diseases (*such as bronchial asthma*).

It is accompanied by nasal polyp formation.

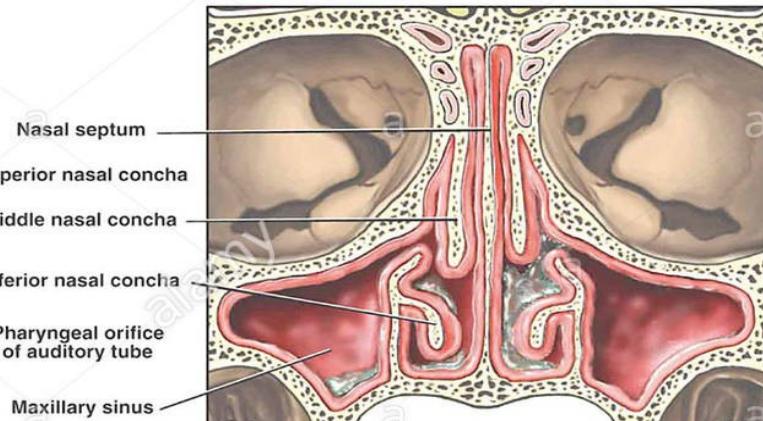
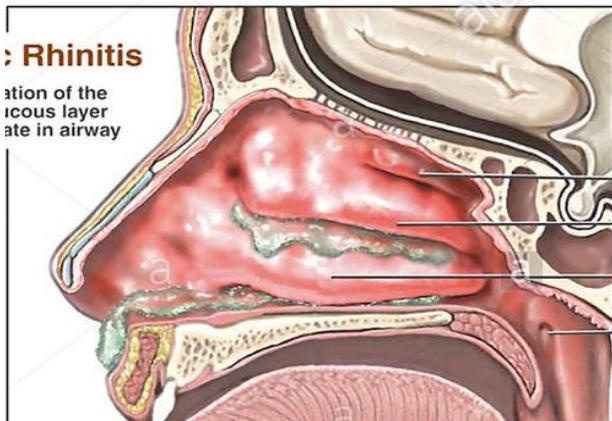
Allergic Rhinitis



Side cut-away view



Anterior cut-away view



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:Inflammatory & allergic nasal polyps -3

Etiology: repeated attacks of acute rhinitis lead to formation of nasal polyps.

Incidence: common in young adults, multiple.

Clinically: may cause nasal obstruction



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Chronic Rhinitis



a. **Chronic non-specific rhinitis:**

b. **Chronic specific (granulomatous) rhinitis:** secondary to rhinoscleroma, leprosy, syphilis and tuberculosis

a. **Chronic Non specific Rhinitis:**

Etiology:

Nasal obstruction by **deviated septum, nasal polyps or tumors.**

This causes mucus accumulation which lead to damage of the cilia allowing retention of the bacteria and chronic infection.

Types:

- 1-Simple chronic rhinitis
- 2-Hypertrophic chronic rhinitis
- 3-Atrophic chronic rhinitis

Chronic Atrophic Rhinitis



Etiology:

A rare disease, more common in females with unclear pathogenesis, the suspected factor is due to ischemic changes.

Pathology:

The nasal cavities are wide, mucosa is thin, atrophic covered by crusts of dried discharge with offensive odour and loss of smell (anosmia).



Rhinoscleroma:

Definition: Granulomatous disease affecting nose, pharynx and larynx (laryngoscleroma).

Causative organism: *Klebsiella rhinoscleromatis* (gram negative bacilli) which multiply inside the macrophages in the nasal mucosa resulting from inhalation of infected droplets.

Rhinoscleroma

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1- Rhinitis stage:

inflammation of the lining nasal mucosa.

2- Atrophic stage:

dry & granular nasal mucosa.

3- Nodular stage:

formation of tumor like nodule on the nasal septum □ gradually spreads □ swelling of the nose. It may cause nasal obstruction and epistaxis.



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Rhinoscleroma



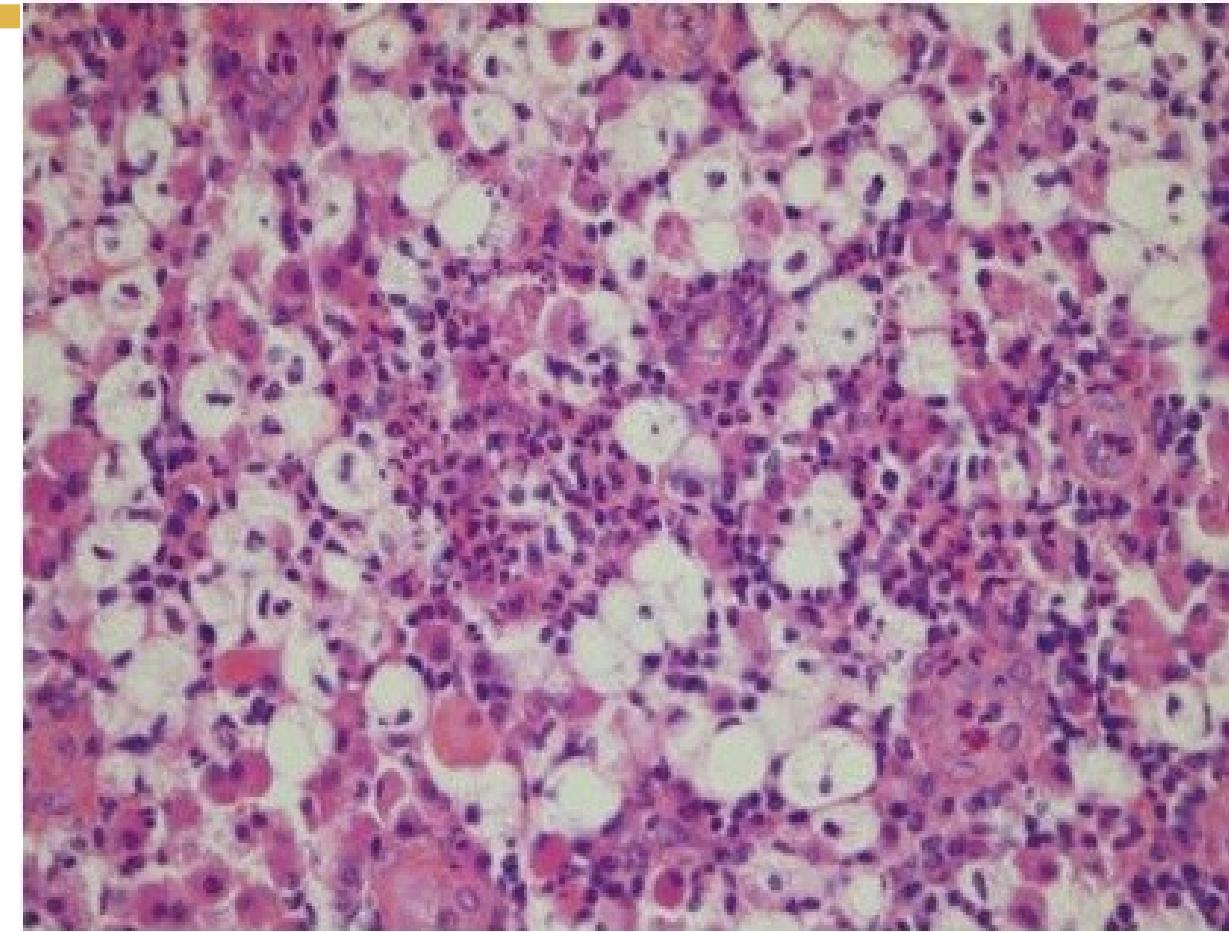
Mikulicz's cells

(pathognomonic diagnostic cells) with pale cytoplasm and small central nuclei. These cells are histiocytes showing hydropic degeneration and they contain the causative organism.

- **Lymphocytes.**
- **Plasma cells**

Degenerated plasma cells or ***Russel bodies*** (plasma cells showing hyaline degeneration)...

The overlying mucous membrane usually shows ***squamous metaplasia***.



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Epistaxis

Definition:

Bleeding from the nose.

Causes:

Local causes:

- Trauma.
- Foreign bodies.
- Rhinitis.
- Nasal polyps & rhinoscleroma.
- Benign and malignant tumors.

Systemic causes:

- Hypertension
- Leukemia.
- Hemorrhagic blood diseases as purpura.
- Deficiency of vitamin C and K.

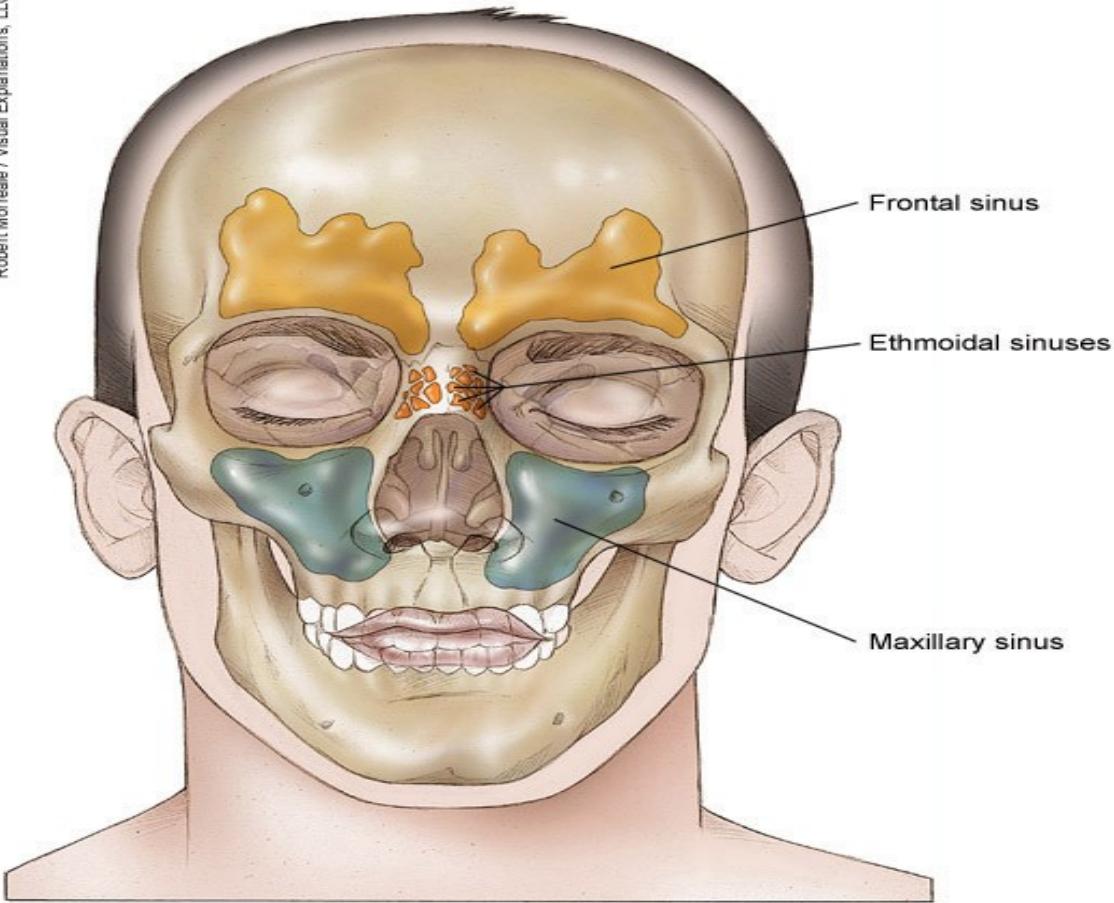


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Sinusitis



Robert Morreale / Visual Explanations, LLC

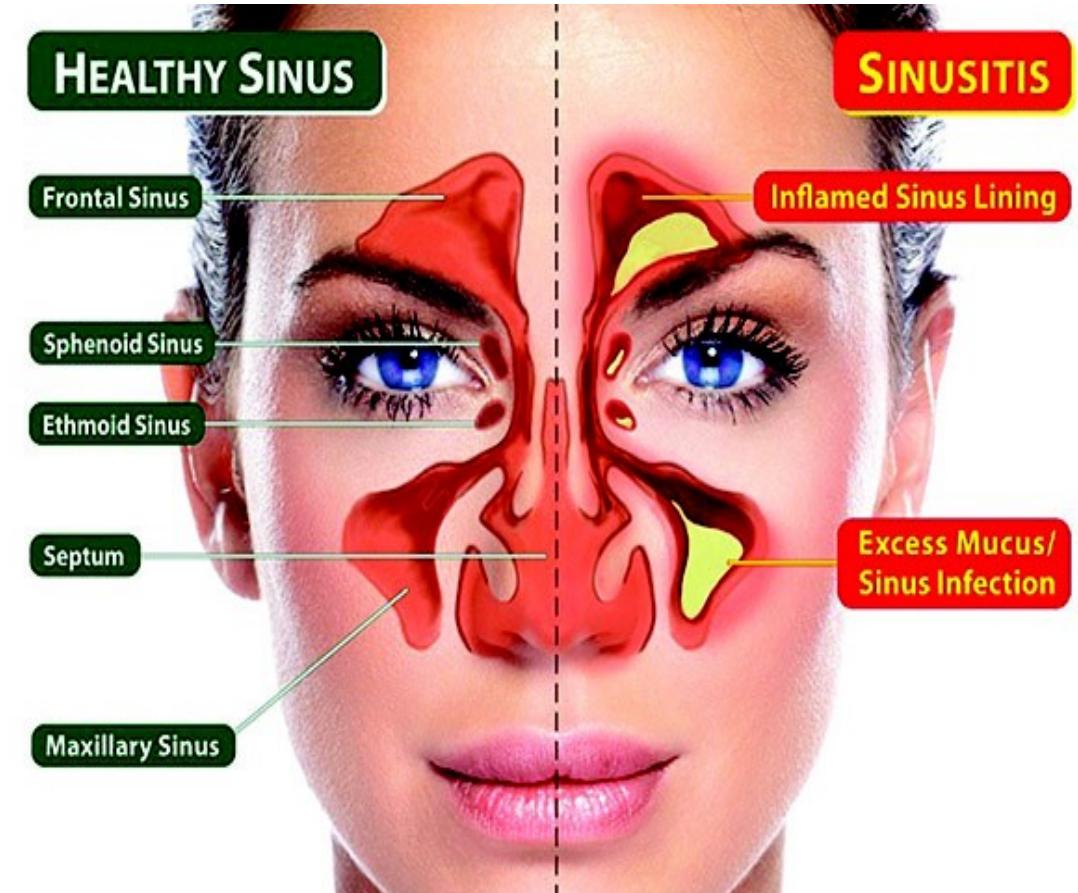


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Cardiopulmonary Module



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Sinusitis



Obstruction of the sinus opening due to edema leads to increased tension inside the maxillary, ethmoid & frontal sinuses with increased secretions

This inflammation results in headache and distension of the sinus by mucus or pus.

Complications: Orbital cellulitis, osteomyelitis, cavernous sinus thrombosis, meningitis and brain abscess (rare).

Acute pharyngeotonsillitis



Etiology: *Causative organism:*

- 1- **Viral infection** (Over 90%), influenza virus, parainfluenza virus, paramyxovirus, adenovirus, respiratory syncytial virus (RSV) and enterovirus.
- 2- **Bacterial infection** mostly streptococcus pyogenes.

Clinically: fever, sore throat (hyperaemia& erythema of the mucous membrane) and enlargement of cervical lymph nodes.

Diagnosis: culture of throat swab.

Acute pharyngeotonsillitis



Mode of infection: droplet infection.

Course & Complications:

Viral infection is usually self-limited.

Bacterial infection leads to suppuration particularly tonsillar, as:

- a-Follicular tonsillitis.

- b-Parenchymatous tonsillitis.

- c-Peritonsillar abscess (Quinsy).

- d-Rheumatic fever

Acute pharyngeotonsillitis



Peritonsillar abscess (Quinsy):

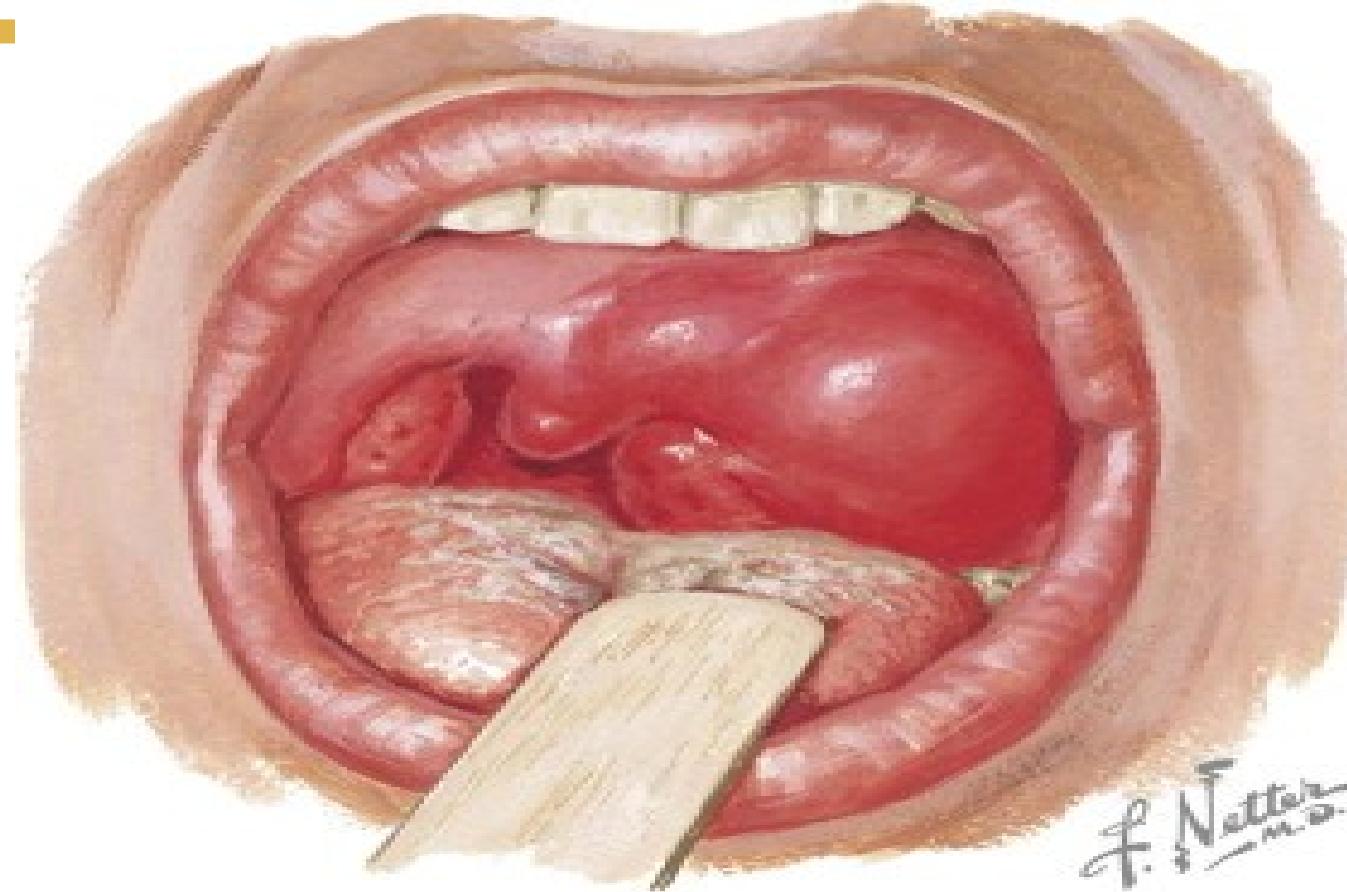
Definition: pus is formed between the tonsil and its capsule (i.e. outside the tonsils) so that the tonsil (usually one of them) is actually surrounded by a lake of pus.

Clinically:

Intense pain especially on swallowing.

Trismus: inability to open the mouth due to spasm of muscles of mastication. It may extend to the retropharyngeal space and rarely to vertebral bones.

Peritonsillar abscess (Quinzy)



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Diphtheria

Definition: it is a special form of pseudomembranous inflammation of the pharynx and tonsillis

Age: mainly children,

Causative organism: Gram +ve bacillus called *Corynebacterium Diphtheria*.

Mode of infection: by droplet infection. It is now extremely rare with D.P.T vaccination, but still present in underdeveloped countries.

Site:

Laryngeal diphtheria is the most common and most dangerous form.

Any mucous membrane (especially the upper respiratory tract).

Skin wounds.

Diphtheria



Pathogenesis:

Bacterial exotoxins lead to necrotic material which forms a pseudo-membrane that causes suffocation.

Systemic absorption of the exotoxins that leads to acute toxic myocarditis.



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Diphtheria



Complications:

- 1- Stridor and asphyxia.
- 2- Severe toxemia leading to:
- 3- Toxic myocarditis (leading to acute heart failure).
- 4- Paralysis of laryngeal muscles (leading to respiratory failure).
- 5- Paralysis of the extra-ocular muscles leading to squint.
- 6- Acute adrenal insufficiency (Addisonian's crisis) due to adrenal necrosis and hemorrhage.
- 7- Zenker's degeneration of rectus abdominus muscle.

Adenoid



Definition: Hyperplasia of the lymphoid tissue in the posterior pharyngeal wall of infants or children due to chronic persistent infection.

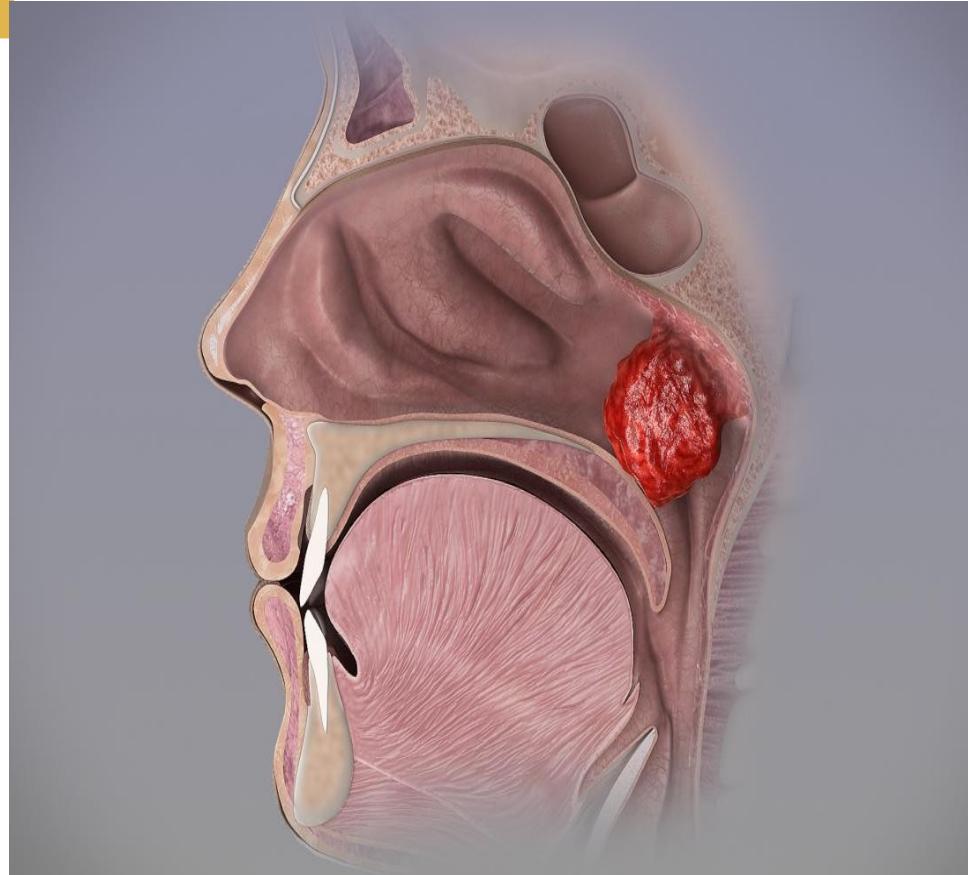
Clinical picture: Nasal obstruction leading to mouth breathing.

-Adenoid face: open mouth, absence of nasolabial folds, short upper lip, protruding central upper incisors and narrow slit like nasal opening.

Complications:

-Repeated attacks of rhinitis ,sinusitis ,otitis media and bronchitis due to the persistence of septic focus.

Adenoid



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Lecture Quiz



Adenoid is:

- a- Inflammatory lesion of lymphoid tissue
- b- Granulomatous lesion of lymphoid tissue
- c- Hyperplastic lesion of lymphoid tissue**
- d- Neoplastic lesion of lymphoid tissue

Lecture Quiz



- **Fill in the space:**

- 1- Klebsiella rhinoscleromatous results in chronic specific inflammation in And
- 2- The pathognomonic cell of rhinoscleroma is.....
- 3- Diphtheria is a type of acute inflammation called.....

SUGGESTED TEXTBOOKS



- 1- Kaplan Medical step 1, lecture notes in Pathology: Chapter 14, Respiratory system , pp. 125-143, 2017.
- 2- Hursh Mohan Text Book of Pathology, 7th ed. (2015): Chapter 14, Respiratory system, pp. 442-488.
- 3- Hursh Mohan Text Book of Pathology, 7th ed. (2015): Chapter 15, eye, ENT and neck, pp. 495-500
- 4- Robbins basic of Pathology, 10th ed. (2018): Chapter 13, Lung. pp. 495-549



A yellow sticky note with a blue pushpin at the top left. The note contains the text "THANK YOU :)" in purple, handwritten-style font. A purple line underlines the word "YOU".

THANK
YOU :)